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ABSTRACT

A study was undertaken to assess college and university mass communication program World Wide Web site content, functionality; and value, and to gauge faculty members' opinions related to Web site creation and maintenance. Descriptive statistics, analysis of variance and t-tests were used to address three hypotheses relating to Web site use by academic programs and related perceptions of social order by faculty. Most programs had an operational Web site. Site enhancements varied widely while most faculty members' opinions were thematically consistent. (Contains 40 references and 3 tables of data.) (Author/RS)

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Communicating About Mass Communication:

A National Study of the Content, Functionality, and Value

of University Mass Communication Program World Wide Web Sites

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Running Head: WWW Sites

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Abstract

A study was undertaken to assess college and university mass communication program World Wide Web site content, functionality, and value, and to gauge faculty members' opinions related to Web site creation and maintenance. Descriptive statistics, analysis of variance and t-tests were used to address three hypotheses relating to Web site use by academic programs and related perceptions of social order by faculty. Most programs had an operational Web site. Site enhancements varied widely while most faculty members' opinions were thematically consistent.

Communicating About Mass Communication:
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Introduction

In the past few years, nearly all college and university mass communication programs have launched promotionally oriented World Wide Web sites. These sites reach general and targeted publics with a variety of visual, operational, and informational enhancements designed to establish program public image, provide course and degree information, and illustrate social and extracurricular opportunities. WWW sites allow programs to promote academic and social opportunities and involve faculty, staff and students in a dialogue with online users.

Though it was once argued that an effort of this type "rubs against the traditions of academe" (Walters, 1982, p. 378), today program promotion is a critical administrative function. Higher education has evolved into a service industry requiring ongoing service as well as involvement with a variety of publics (Ihlanfeldt, 1980). Institutions and programs must reach out to educational consumers if academic offerings are to be successful in a competitive marketplace (Topor, 1993).

A casual observation reveals widespread use of promotional WWW sites by mass communication programs. But the literature offers no research-based confirmation of how sites differ based on institutional organizational structure. Existing research focuses on the proliferation of WWW sites in general (Aikat, 1997; Ho, 1997), the collaboration of process through which sites are created (Andrew & Musser, 1997), and the general impact of WWW design variables on users of the medium (Fucella & Pizzolato, 1998; Laux, 1998; Wright, 1997). A wealth of research addresses online learning and curriculum-related concerns (Postrel, 1998; Maring and others, 1996; Boisot, 1995). But there has no effort to confirm the specific ways in which mass communication WWW sites use visual, operational, and informational enhancements -- and how sites of programs in differently-structured institutions differ from each other. Furthermore, little attention has been paid to learning what faculty members think about the efficacy of promotional WWW sites in the discipline.

With these concerns in mind, this study examines how programs which are members of the Association for Education in Journalism and Mass Communication make use of WWW site enhancements and how sites differ,

based on organizational attributes of host institutions. It also involves a survey of faculty to learn how faculty rank organizational support for WWW site development. The aim of the study is to bring about greater understandings of how promotional WWW sites are being used in the discipline by differently-structured institutions and programs, and to determine how faculty are involved in the process.

Background

In the competitive marketplace of higher education, institutions and programs must be able to use the World Wide Web successfully as part of a strategy to promote academic offerings, build on existing strengths, and recruit the greatest number of students who are most likely to be retained to graduation. This is particularly important in mass communication, a discipline which has been challenged on many fronts to recruit and retain the brightest students.

Promotional WWW sites for higher education programs allow competitive advantage in a marketplace with no barriers to entry, aside from technological concerns (Helmstetter, 1997). Web sites allow organizations to target specific information to specific groups (Ellsworth & Ellsworth, 1997), to change and update information easily and inexpensively (Siskind, 1996), and to increase the speed at which education consumers can gather data and the level at which they may access it (Tennant, 1996). An presence on the WWW evens out competitive disadvantages between organizations (Helmstetter, 1997), and, as a consequence of the interactive social nature of the medium, "raises the level of personal interaction" (Fisher, 1995, p. 38) between organizations and the users who seek information.

Successful marketing of a higher education program is not any one particular event in time. It is an approach "woven into the fabric of organizational life" (Simerly, 1989, p. 451). It involves an effort to make a student prefer one particular program to any other which may exist in the marketplace (Doyle & Newbould, 1986). It is "a methodology that permits decision makers in an organization to think systematically and sequentially about the mission of the organization, the services or products it offers, the markets it currently serves, and the extent to which these same markets and possibly new ones may demand its products or services in the future" (Ihlanfeldt, 1980, p. 13). Few could argue that a WWW site should not be a key element in this marketing and promotional effort.

A variety of research efforts have addressed how 'effective' WWW sites are created. Existing literature documents the teamwork development approach (Jagodzinsky, Cunningham, Day, Naylor, & Schobernd, 1997). Other work examines the pros and cons of style guides (McCollum, 1999; Pollard, 1997), the need to develop WWW sites in accordance with surveys of user expectations and responses (Borges, Morales, & Rodriguez, 1998; Fuccella & Pizzolato, 1998), the importance of ease of navigation (Whittaker, 1998) and elements of online rhetorical 'success' (See Deloughry, 1995). Related to these concepts are those of visual organization (Hagerty, 1994), and visual literacy (Kerns & Johnson, 1994). There have been efforts to determine how WWW sites meet specific needs of the general population (Castells, 1996), members of minority groups (Wright, 1997), children (Hundt, 1997; Riley, 1997), and people with physical disabilities (Laux, 1998). Existing literature confirms the extent to which a variety of different organizations use promotional WWW sites (Aikat, 1997; Ho, 1997) and the extent to which academic WWW sites may be "good" or "poor" promotional examples (A survey of... , 1995, Abstract). These research efforts and others go a long way toward helping explain WWW cause-effect relationships in a general sense, but they do not shed light on the specific concerns of mass communication program administrators who need to create WWW sites with the enhancements most appropriate to creating an online relationship with specific targeted groups.

An additional area of concern to mass communication program administrators is that of faculty members' assessment of organizational support for WWW site development and faculty members' evaluation of their own program WWW site. Organizational support is reflective of social order (Couch, 1996; Elster, 1989), is culturally dependent (Kraybill, 1978) and sustained through a division of labor, construction of trust and solidarity, a regulation of power, and a legitimization of social activity (Eisenstadt, 1992). A high level of support would be desirable; it would conceivably spur faculty involvement in a WWW-based promotion, while a low level of support might actively or passively discourage faculty involvement. It is reasonable to expect that any academic program using a promotional WWW site would have some level of organizational support which relates to site development and could be evaluated by faculty as easily as they could critique the actual WWW site display.

Having the additional understandings gained from this research should allow administrators in mass communication programs to more effectively administer WWW sites and understand the involvement and opinions

of faculty members. It should also facilitate more effective communication with targeted publics who look to the promotional WWW site as a technological 'place' which portrays the institution, its mass communication program, and the overall academic and social experience in a very real way for online audiences.

Research Questions

This study examines how programs which are members of the Association for Education in Journalism and Mass Communication are using the World Wide Web to promote their campus and community offerings. Specifically, the researcher sought to identify relationships between institutional organizational attributes and the visual, operational, and informational enhancement of WWW sites hosted by academic programs. The researcher also explored relationships between institutional organizational attributes and program faculty members' involvement in WWW site development.

> Hypothesis 1: Mass communication programs housed in less complex institutions–those which are privately-supported, exclusively undergraduate, or in lower Carnegie Foundation classifications--will have promotional WWW sites which display significantly lower levels of enhancement than programs in more complex institutions–those which are publicly-supported, offer graduate degrees, or are in higher Carnegie classifications.
>
> Hypothesis 2: Faculty members working in mass communication programs housed in less complex institutions–those which are privately-supported, exclusively undergraduate, or in lower Carnegie Foundation classifications--will offer lower rankings of WWW site content, functionality, and value than faculty working in programs in more complex institutions–those which are publicly-supported, offer graduate degrees, or are in higher Carnegie classifications.
>
> Hypothesis 3: Faculty members working in mass communication programs housed in less complex institutions–those which are privately-supported, exclusively undergraduate, or in lower Carnegie Foundation classifications--will offer lower rankings of organizational support for Web-based promotional activity than faculty working in programs in more complex institutions–those which are publicly-supported, offer graduate degrees, or are in higher Carnegie classifications.

Institutional organizational variables include the affiliation of the educational institution–public or private; the institutional Carnegie Foundation ranking (Carnegie Foundation Classification of . . ., 1994)–a measure of academic and organizational complexity; and, presence or absence of a graduate program of study in mass communication. Web site enhancement was determined by a sum ranking for presence or absence of 15 types of visual enhancements, 18 types of operational enhancements and 24 categories of information which are commonly found on promotional Web sites (Vora, 1998; December & Randall, 1995). The term 'organizational

support' is defined as existence of a positive social order in which there is adequate delegation of labor, an atmosphere of trust, a regulation of resources, and a supportive relationship in which work meets the goals set for it (See Couch, 1996; Eisenstadt, 1992).

Method

A group of 200 college and university mass communication programs was selected at random from listings in the 1998-99 Directory of the Association for Education in Journalism and Mass Communication. As the result of a World Wide Web search, 193 colleges and universities were found to have operationally functional promotional WWW sites. A quantitative and qualitative content analysis was performed on these sites during a tenday period in January, 1999.

Of 193 qualified colleges and universities, 126 (65 %) were public institutions; 67 (35 %) were private institutions. Graduate degrees in mass communication were offered by 103 programs (53%). The study population included colleges and universities in all eight Carnegie classes: Research I, 32 (17 %); Research II, 16 (8 %); Doctoral I, 13 (7 %); Doctoral II, 18 (9 %); Masters I, 86 (45 %); Masters II, 10 (5 %); Baccalaureate I, 3 (2 %); and Baccalaureate II, 15 (8 %). [See Table I]

The analysis procedure involved accessing each mass communication WWW site to identify presence or absence of visual, operational, and informational enhancements. Sites were scored to receive one point for each enhancement type present, regardless of the number of instances of the enhancement which were evident. No points were given for enhancement types not present.

Each WWW site was qualitatively evaluated for download time required, time lapse since last revision, presence of inoperable hyperlinks, grammatical and spelling errors in text, obviously outdated or factually incorrect information, and any other visual, operational, or informational elements which might impede the promotional message.

E-mail requests to participate in a survey of faculty were sent over a period of several weeks in January and February, 1999, to 750 faculty linked via e-mail hyperlinks on the WWW sites in the study population. Those qualified included 92 faculty identified as program chairs, 76 identified as WWW site administrators, and 582 faculty members who were not identified as either the program chair or WWW site administrator. Each respondent

received three requests to participate, and had the option to reply via a Web-based survey form, or through e-mail. A total of 127 faculty responded, yielding a response rate of 20 percent.

The survey instrument asked each respondent to rank agreement to 16 positive statements relating to the existence of adequate delegation of labor, an atmosphere of trust, regulation of resources, and the creation of a mutuallysupportive relationship between the academic program and its promotional WWW site. Respondents were asked to offer their responses on a Likert-type scale with 5 being the highest level of agreement and 1 being the lowest level.

The survey instrument also asked each respondent to rank agreement to 7 positive statements relating to personal perceptions of the WWW site and whether the site is accurate, complete, professional, attractive, relevant, and an effort involving a variety of input from faculty, staff, and students. Respondents were asked to offer their responses on a similar Likert-type scale. An open-ended comment section was included, for respondents to elaborate on responses if desired. No length limit was imposed for comments.

Results

Of the programs in the study population, 172 (89 %) had a specific promotional site for mass communication; 21 (10%) disseminated information about mass communication program offerings through the host institution site.

Survey responses were obtained from 20 percent of faculty members contacted. Those responding self-identified as academic program chairs (33, or 36% of 92 surveyed), WWW site administrators (35, or 46% of 76 surveyed), and 'other' faculty (59, or 10% of 582 surveyed).

Hypothesis 1

Hypothesis 1 was supported. A series of t tests performed on the content analysis data showed that WWW sites hosted by mass communication programs in public institutions were significantly more enhanced than sites hosted by similar programs in private institutions. Significant differences were found in visual enhancement (t test of equal variances, $t = 2.77$, $df = 191$, $<.01$), operational enhancement (t test of equal variances, $t = 4.80$, $df = 191$, $<.01$), and informational enhancement (t test of equal variances, $t = 4.53$, $df = 191$, $<.01$), as well as in total (t test of equal variances, $t = 4.76$, $df = 191$, $<.01$).

An additional series of t tests showed that WWW sites hosted by mass communication programs offering graduate degrees were significantly more enhanced than sites hosted by programs which were exclusively undergraduate. Significant differences were found in visual enhancement (t test of equal variances, $t = 4.24$, $df = 191$, $<.01$), operational enhancement (t test of equal variances, $t = 4.91$, $df = 191$, $<.01$), and informational enhancement (t test of equal variances, $t = 6.45$, $df = 191$, $<.01$), as well as in total (t test of equal variances, $t = 6.24$, $df = 191$, $<.01$).

A one-way analysis of variance was performed to compare the total WWW site enhancement mean scores among mass communication programs within each of the eight Carnegie Foundation classifications of higher education institutions. ANOVA was used because the data involved were non-proportional mean scores; each Carnegie classification category and responses obtained within it were independent of all other classifications and responses. A separate ANOVA was calculated for each category. Total site enhancement mean scores for programs housed in institutions in the Carnegie Baccalaureate II category were found to be significantly lower than total site enhancement mean scores for programs housed in institutions in the Research I, Research II, and Master's I categories (ANOVA, $F = 5.55$, $df = 192$, $<.01$) and significantly lower than total site enhancement mean scores for programs housed in institutions in the Doctoral I category (ANOVA, $F = 5.55$, $df = 192$, $<.05$).

A similar finding was obtained for visual, operational, and informational enhancement mean scores. Visual enhancement mean scores for programs housed in Baccalaureate II institutions were significantly lower than visual enhancement mean scores for programs housed in Research I and Research II institutions (ANOVA, $F = 3.13$, $df = 192$, $<.05$). Operational enhancement mean scores for programs in Baccalaureate II institutions were significantly lower than operational enhancement mean scores for programs in Research I, Research II, Doctoral I, and Master's I institutions (ANOVA, $F = 5.19$, $df = 192$, $<.01$) and were significantly lower than programs in Doctoral II institutions (ANOVA, $F = 3.13$, $df = 192$, $<.05$). Informational enhancement mean scores for programs housed in Baccalaureate II institutions were significantly lower than informational enhancement mean scores for programs housed in Research I, Research II, and Master's I institutions (ANOVA, $F = 3.13$, $df = 192$, $<.01$). [See Table II]

Hypothesis 2

Hypothesis 2 was not supported. No significant differences were identified between responses of faculty in privately-supported institutions as compared with rankings of faculty in publicly-supported institutions. Likewise, no significant differences were identified among rankings given by faculty members across different Carnegie classifications.

However, significant differences were found between site rankings offered by faculty teaching in programs offering graduate degrees as compared with faculty teaching in programs which did not. A t test showed that faculty in undergraduate programs gave higher rankings to their academic program WWW sites (t test of equal variances, $t = 2.10$, $df = 125$, $> .05$) than did faculty in programs where graduate degrees were offered.

Hypothesis 3

Hypothesis 3 was not supported. No significant differences were found between mean rankings given by faculty members working in mass communication programs housed in privately-supported institutions and mean rankings given by faculty working in publicly-supported institutions.

A t test was used to compare mean rankings given by faculty members working in mass communication programs which offered graduate degrees with rankings offered by faculty working in undergraduate programs. The results showed that rankings of faculty working in mass communication programs which offered graduate degrees were significantly lower than rankings given by faculty members working within programs which were exclusively undergraduate (t test of equal variances, $t = 3.06$, $df = 125$, $> .01$).

No significant differences were identified among rankings given by faculty members across different Carnegie classifications.

Qualitative Findings

Nearly all colleges and universities involved in this study had a specific promotional WWW site for the mass communication program. However, sites varied greatly in visual, operational, and informational enhancements and in the overall integration of enhancements to present positive promotional messages.

Visual enhancements

Though the World Wide Web is a visually-driven medium, most of the sites analyzed could be described

only as 'average' in their use of visual enhancements. Most sites were fairly common in appearance; many lacked visual enhancements which would distinguish them from WWW sites of competing programs. Visual enhancements now considered 'state of the art' for business and commercial WWW sites, such as enlargeable photos, audio clips, and live video (See Rich, 1999; Helmstetter, 1997) were used by fewer than 5 percent of mass communication program WWW sites.

Thirty of the sites (or, 16% of the total) displayed visual enhancement awkwardness or errors including inconsistent design or incomplete visual elements, garish contrasting colors, or excessively complicated frame displays. One school of journalism site had graphics overlaying text, rendering the WWW site almost unreadable.

Operational enhancements

A key qualitative issue in operational enhancements is the ease of navigation through the site. The majority of sites were easy for the user to navigate, either by mouse clicking on posted icons or by pursuing commonlyanticipated paths (See Whitaker, 1998). Some sites scored high in operational enhancement but did not structure or display enhancements in productive ways. Other sites used smaller numbers of enhancements, but linked more critical informational content to them–in essence, making the operational enhancements more valuable.

A few sites were exceptionally difficult. Some had long blocks of text which demanded lots of screen scrolling to glean promotional information. Other sites had multiple levels which were confusing at best. One site had four page levels between the institutional WWW site and the opening page of the journalism site.

Fifty-five sites (or, 28% of the total) displayed operational enhancement awkwardness or errors. The most frequent problem was that of missing or invalid hyperlinks. Thirty-one sites (or 16 %) contained at least one hypertext link to subordinate pages, other sites, or e-mail boxes which was not operational. One site had five invalid links on its opening page. Other operational enhancement problems included confusing site organization and awkward or missing directories.

The most current listed 'date of last revision' was reported as two days previous to the site analysis. The most dated revision was reported as 44 months earlier. The average mean time since last reported revision was 9.04 months. The standard deviation was 8.76 months.

Informational enhancements

The examination of sites suggests that some programs do extremely well in presenting a large quantity of different types of information on their WWW sites, while other programs make only a minimal effort. While 11 sites (6%) used 15 or more enhancements, 109 sites (56%) used fewer than ten enhancements, indicating a minimal presentation of promotional content.

Fifty-four sites (or, 28% of the total) displayed informational enhancement awkwardness or errors. These errors included program information perceived as outdated, irrelevant, or trivial, or program information which was obviously inaccurate – factually, grammatically, or stylistically. One site misspelled the word Journalism in its opening page heading. Seventy-eight sites (40%) failed to display a program mailing address or phone number; 57 sites (30%) failed to list academic degrees offered.

Survey responses

Survey responses indicate faculty members gave, at best, only moderate rankings of agreement to the statements addressing positive organizational support for WWW site-related tasks. Faculty members' mean ranking of the seven statements was 3.24, indicating "unsure or don't know" responses. The standard deviation among all statements was 1.07.

Respondents gave their highest ranking of agreement to: "The operational components of our site are complete, professional, and attractive." The mean response to this statement was 3.76. The standard deviation was .90. Respondents gave their lowest ranking of agreement to the statement "I am pleased with the level of involvement of faculty, staff, and students in regard to Web site planning, development, and use." The mean ranking of this statement was 2.54, indicating "disagree" responses. The standard deviation was 1.09. [See Table III]

Written comments were offered by 25 (20%) of the 127 respondents. Nearly all were respondents who identified themselves as their program's WWW site administrator or 'other' faculty member. Most were critical of leadership, faculty involvement, and available resources.

Criticisms of program leadership included the observations that "the Web site is an afterthought, like many other things" and that "development and maintenance of our website falls into the category of service, which

means that nobody wants to do it." One respondent wrote that the WWW site is "a missed opportunity for the department as the unit" because of a lack of leadership. Another observed that the program WWW site has become "a hobby" for one interested faculty member.

Faculty non-participation was an issue mentioned by several respondents, one of whom was "shocked at the low level of faculty concern and involvement." "The college began planning for and developing its web site many years ago with tremendous faculty enthusiasm," another respondent wrote. "Once the site got started, the faculty, with few exceptions, turned its attention elsewhere." Another faculty member complained that "half our faculty do not have a clue as to why the Web is important or useful" while another reported that "[f]aculty with narrow, traditional interests don't give a darn about the Web in any respect."

Availability of resources for WWW site development was mentioned by several respondents, including a faculty WWW site administrator who wrote that his efforts have "been met with disinterest at best, but more typically with disdain." "Maintaining our departmental web presence has more often than not been a heavy burden born by one faculty person and a graduate student who are never encouraged for their efforts, but quickly chastised if the page(s) should be down, or inaccurate" another wrote.

Summary

This research affirms much about the visual, operational, and informational content of academic program World Wide Web sites–findings which had heretofore been only conjectured among online users. The research affirms that many academic program Web sites are flawed from a marketing perspective and contain visual, operational, or informational elements which detract from site content, functionality and value.

This study identified a number of research areas which merit further investigation. It would be helpful for an ongoing effort to be developed, in which mass communication program academic WWW sites could be evaluated on an ongoing basis, to see how site content, functionality, and value changes. A WWW site can be changed at a moment's notice--several of the sites in this research have already been altered. Surely there will be even greater amounts of change in the future, as resources for WWW site creation are advanced, technology becomes more 'userfriendly,' more students and faculty become Web savvy, and institutional and program leaders see more value in WWW sites. These changes should be quantitatively and qualitatively tracked.

There should be additional research work to compare the visual, operational, and informational enhancements of mass communication program WWW sites with sites operated by entities in the commercial sector. In the increasingly competitive marketplace of higher education (Topor, 1997; Goldgehn, 1990), colleges and universities should be at the forefront of WWW marketing and promotions technology. Our discipline demands it. Yet, this study has illustrated areas in which standards for our discipline lag well behind those of the business sector.

Beyond that, we must attempt to quantify why WWW site creation and maintenance issues are given the 'short shrift' perceived by many faculty members. Perhaps additional research work with larger populations would help uncover social, organizational, administrative, procedural, or disciplinal variables which affect the decisions of faculty and administration to be involved in WWW site development.

Our discipline needs to be perceived by potential students and the general public as one which is vital, active, and proactive in use of the World Wide Web as a communications medium. Faculty need to be involved in the process. If we cannot or will not bring this about, the public is likely to reach the conclusion that our discipline and academic programs are out of step with the times.

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Table I
Profile of Study Population Institutions and Programs
By Carnegie Classification, Program Organizational Structure, Program Title & Graduate Offerings
N = 193

Carnegie Classification	N	Public	Private	College	School	Dept.	Division	Program	"Journalism"	"Mass Comm."	"Comm."	Other	Graduate Degree(s) Offered
Research I	32	28	4	4	11	17			13	2	9	8	29
Research II	16	11	5		8	8			4	2	6	4	13
Doctoral I	13	11	2	1	1	9	1	1	5	1	6	1	11
Doctoral II	18	12	6		6	11	1		6		9	3	11
Masters I	86	57	29	1	12	68	3	2	10	14	25	37	36
Masters II	10	2	8			7	1	2	1	1	5	3	1
Baccal. I	3		3		1	2			1		1	1	
Baccal. II	15	5	10		2	9	1	3	1	3	6	5	2
	193	126	67	6	41	131	7	8	41	23	67	62	103

Table II
Web Site Enhancement Scores
Significant Differences Among Categorical Means

Carnegie Classification	**Visual Enhancement**	**Operational Enhancement**	**Informational Enhancement**
Research I	+2.23 (.646)	+4.42 (.820)	+6.47 (1.27)
Research II	+2.32 (.742)	+4.70 (.942)	+5.94 (1.46)
Doctoral I		+3.71 (.993)	
Doctoral II		+2.77 (.916)	
Master's I		+3.40 (.734)	+4.06 (1.14)
Master's II			
Baccalaureate I			
Baccalaureate II	4.73 (.581)	1.66 (.504)	3.86 (.716)

(Standard Error in Parentheses)

Table III
Respondents' Ranking of Program Web Sites
N = 127

Statement	Mean Ranking	Standard Deviation
"The operational components of our site are complete, professional, and attractive."	3.76	.90
"The visual components of our site are complete, professional, and attractive."	3.73	.90
"The information offered by our site is thorough, accurate, and relevant."	3.43	1.12
"Our unit's academic Web site is professionally maintained."	3.26	1.18
"Our unit's academic Web site was developed in accordance with a clearly defined concept."	3.06	1.12
"Our academic unit has a clearly-defined purpose for Web site; the site fulfills that purpose."	2.91	1.18
"I am pleased with the level of involvement of faculty, staff, and students in regard to Web site planning, development, and use."	2.54	1.09